Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE

1319: Research, Development, Test & Evaluation, Navy

PE 0604258N: Target Systems Development

BA 6: RDT&E Management Support

COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	76.018	79.273	66.066	0.000	66.066	52.874	39.180	38.439	39.351	Continuing	Continuing
0609: Aerial Target System Dev	47.648	55.390	49.456	0.000	49.456	30.655	15.226	13.794	14.076	Continuing	Continuing
0610: Wpn Sys T&E Trng Dev/ Proc	26.068	22.671	15.190	0.000	15.190	20.788	22.499	23.157	23.757	Continuing	Continuing
0612: Surface Targets Development	2.302	1.212	1.420	0.000	1.420	1.431	1.455	1.488	1.518	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element funds the development and procurement of aerial targets, sea surface targets, control systems, and associated target augmentation and auxiliary systems needed to represent real world threat systems. These capabilities are key enablers to the successful execution of the developmental and operational test and evaluation of naval combat weapons systems and to the satisfaction of advanced fleet training requirements.

This program element includes \$0.011 Million for the Acquisition Workforce in FY2009.

B. Program Change Summary (\$ in Millions)

FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
79.858	79.603	0.000	0.000	0.000
76.018	79.273	66.066	0.000	66.066
-3.840	-0.330	66.066	0.000	66.066
	-0.330			
	0.000			
0.000	0.000			
	0.000			
	0.000			
-1.496	0.000			
-2.345	0.000			
0.000	0.000	66.066	0.000	66.066
0.001	0.000	0.000	0.000	0.000
	79.858 76.018 -3.840 0.000 -1.496 -2.345 0.000	79.858 79.603 76.018 79.273 -3.840 -0.330 -0.330 0.000 0.000 0.000 0.000 -1.496 0.000 -2.345 0.000 0.000	79.858 79.603 0.000 76.018 79.273 66.066 -3.840 -0.330 66.066 -0.330 0.000 0.000 0.000 0.000 0.000 -1.496 0.000 0.000 0.000 0.000 0.000 66.066	79.858 79.603 0.000 0.000 76.018 79.273 66.066 0.000 -3.840 -0.330 66.066 0.000 -0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 -1.496 0.000 0.000 0.000 0.000 0.000 66.066 0.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 6: RDT&E Management Support	R-1 ITEM NOMENCLATURE PE 0604258N: Target Systems Development	
Change Summary Explanation Technical: Not applicable.		
Schedule: Not applicable.		
FY11 from previous President's Budget is shown as zero becaus	se no FY11-15 data was presented in President's Budget 2010	

DATE: February 2010

		•										
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 6: RDT&E Management Support					R-1 ITEM NOMENCLATURE PE 0604258N: Target Systems Development				PROJECT 0609: Aerial Target System Dev			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost	
0609: Aerial Target System Dev	47.648	55.390	49.456	0.000	49.456	30.655	15.226	13.794	14.076	Continuing	Continuing	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0			

A. Mission Description and Budget Item Justification

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy

Aerial target systems, target control, and associated target augmentation and auxiliary systems are developed to support test & evaluation and advanced fleet training for Joint Strike and Littoral Warfare Systems required to defend fleet surface and air units in a hostile environment.

This project includes

- Subsonic Targets. Subsonic Aerial Target (SSAT) development. The SSAT primarily represents subsonic anti-ship cruise missile threats in direct support of the test & evaluation of major combat weapons systems programs and fleet training.
- Supersonic Targets. Supersonic Sea Skimming Target (SSST), Multi-Stage Supersonic Target (MSST) and supersonic high-diver capability development. The family of supersonic target capabilities represents supersonic anti-ship cruise missile threats in direct support of developmental & operational test and evaluation of major combat weapons systems programs in development.
- Target Control (TC) and Target Augmentation & Auxiliary Systems (TA/AS) development. TC provides command and control of targets to enable the execution of threat representative mission profiles. TA/AS enables each target to be uniquely configured for specific mission profiles. TA/AS configured targets are used for radar acquisition test, electronic countermeasures (jamming) evaluation, infrared measurement/test, radar cross section evaluation, decoy effectiveness, maneuver analysis, electronic warfare, warhead effectiveness and evaluation of fleet tactics. TA/AS scoring capabilities include both surface and airborne scalar and vector scoring systems.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Supersonic Aerial Targets	36.793	44.417	29.207	0.000	29.207
Multi-Stage Supersonic Target (MSST) emulates a two-stage Anti Ship Cruise Missile. The MSST will have a bus stage that will tumble and fall into the sea, and a sprint stage that continues flight to impact. The fielded system will provide threat representation in support of DOT and will identify deficiencies in shipboard air defense systems. Funding will continue GQM-163 SSST upgrades/					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy				DATE: Feb	ruary 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 6: RDT&E Management Support	R-1 ITEM NOMENCLATURE PE 0604258N: Target Systems Develop	pment	PROJECT 0609: Aeria	l Target Syst	tem Dev	
B. Accomplishments/Planned Program (\$ in Millions)			1			
	F	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
evolutionary development to keep pace with evolving threat cha to establish operational capability at Pacific Missile Range Facili characteristics to include flight termination performance, and co-capability.	ty, developing performance envelope					
FY 2009 Accomplishments: Held Post Award Conference. Held program's Startup Workshot Requirements Review (SRR). Held a successful Management Systems Assessment and Sch in subcontractor's Integrated Baseline Review (IBR). Renegotia adjustment necessitated by protest. Held IBR with Prime Contractory.	edule Risk Assessment. Participated ated SDD Contract for equitable					
FY 2010 Plans: Hold the program's Systems Functional Review. Hold the program the program's Preliminary Design Review. Participate in the Tequarterly Program Management Reviews and hold quarterly S	chnology Assessment Review. Hold					
FY 2011 Base Plans: Test the EEU #2 unit, Hold the program's Critical Design Revie program's Integrated Readiness Review, Hold the program's T quarterly Program Management Reviews, and Hold quarterly S	echnology Readiness Review, Hold					
Subsonic Aerial Targets		3.641	4.816	13.300	0.000	13.300
Continue Subsonic Aerial Target development to keep pace with Incorporate configuration control requirements into RFP and Systelection for the Engineering and Manufacturing Development pathe EMD phase and conduct and support reviews and development	stem Engineering Plan. Conduct source hase (EMD). Manage the execution of					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy				DATE: Febr	uary 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 6: RDT&E Management Support	R-1 ITEM NOMENCLATURE PE 0604258N: Target Systems Deve	elopment	PROJECT 0609: Aeria	al Target Syst	em Dev	
B. Accomplishments/Planned Program (\$ in Millions)			'			
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Defined requirements; developed RFP package.						
FY 2010 Plans: Release RFP, conduct source selection, and award contract.						
FY 2011 Base Plans: Conduct Engineering and Manufacturing Development (EMD).						
Target Control/Target Threat Sim./Target Aux. & Augmentation Sys.		7.214	6.157	6.949	0.000	6.949
Continue to support Target Control (TC) and Target Auxilliary & Aug of supporting T&E and fleet training activities. TC involves the improcapable of controlling multiple targets simultaneously while delivering data. Augmentation and Auxilliary systems must be capable of augmentation test, electronic countermeasures (jamming) evalual radar cross section evaluation, decoy effectiveness, maneuver analy effectiveness and evaluation of fleet tactics, readiness and training.	oved command and control systems g adequate fidelity of T&E telemetry nenting targets in support of tion, infrared measurement/test,					
FY 2009 Accomplishments: Filthy Badger incremental upgrade FY08 completed. Unit meets re DPT-2B threat emitter. Unit inducted for evaluation. Awarded contr Filthy Badger incremental upgrade. Intelligence gathering and expland Set system completed.	acts for MPM Second Source and					
FY 2010 Plans: Plan to award Filthy Buzzard Advanced Digital Radio Frequency M contract will establish a five year IDIQ contract for first article development.						

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE

PROJECT

1319: Research, Development, Test & Evaluation, Navy BA 6: RDT&E Management Support

PE 0604258N: Target Systems Development

0609: Aerial Target System Dev

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Filthy Badger DRFM - incremental upgrade planned. Millimeter wave threat emitter - development of two prototypes planned. E/F Band RF Deck for Modulator controller - development of two prototypes planned. Millimeter Wave Antennas - development of two prototypes planned for each of the 6 different types required. E/F Band Integrated Stabilized RF Source - development of two prototypes planned.					
Accomplishments/Planned Programs Subtotals	47.648	55.390	49.456	0.000	49.456

C. Other Program Funding Summary (\$ in Millions)

	-	-	FY 2011	FY 2011	FY 2011					Cost To	
<u>Line Item</u>	FY 2009	FY 2010	<u>Base</u>	OCO	<u>Total</u>	FY 2012	FY 2013	FY 2014	FY 2015	Complete	Total Cost
WPN 22800: Aerial Targets	78.581	43.349	43.988	0.000	43.988	78.421	76.161	72.532	74.079	Continuing	Continuing
WPN 31200: Spares and Repair	1.461	0.820	1.422	0.000	1.422	1.554	1.559	1.485	1.562	Continuing	Continuing
Parts											-

D. Acquisition Strategy

N/A

E. Performance Metrics

EFFORT	PERFORMANCE REQUIREMENT	OBJECTIVE	THRESHOLD	TEST RESULT
SSAT EMD program	Maximum Speed at Low Altitude [Mach (M) at feet (ft) above wave crest at WMO Sea State conditions]	0.95 M @ 6.6 ft @ Sea State 5	0.90 M @10.0 ft @ Sea State 3	TBD

MSST Speed of separated sprint Mach 2.2 to Mach 3.5 Threshold=Objective TBD

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Exhibit R-2A	A, RDT&E Project Justification: PB 2011	Navy				DATE: February 2010
1319: Resea	TION/BUDGET ACTIVITY rch, Development, Test & Evaluation, Navy Management Support	′	R-1 ITEM NOMENCLATURE PE 0604258N: Target Systems L	PROJECT 0609: Aerial Target System Dev		
EMD	vehicle					
TC-TA/AS TTSP	Microwave power module - Second Source	100 Watts outpu power	ut Threshold=Objective	TBD		

DATE: Echruary 2010

EXHIBIT K-ZA, KDT&E PTOJECT JUS	Suncation. Pi	D ZUTT Mavy	/				DATE. Febluary 2010						
	PROPRIATION/BUDGET ACTIVITY 9: Research, Development, Test & Evaluation, Navy 6: RDT&E Management Support					R-1 ITEM NOMENCLATURE PE 0604258N: Target Systems Development				PROJECT 0610: Wpn Sys T&E Trng Dev/Proc			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost		
0610: Wpn Sys T&E Trng Dev/ Proc	26.068	22.671	15.190	0.000	15.190	20.788	22.499	23.157	23.757	Continuing	Continuing		
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0				

A. Mission Description and Budget Item Justification

Exhibit P-24 RDT&F Project Justification: PR 2011 Navy

This project provides for the development and procurement of aerial targets and associated systems used exclusively for test and evaluation of naval weapons systems which closely represent current and projected threats to fleet units in the Joint Strike and the Littoral Warfare environments. These representations must include characteristics related to size, performance envelope, and electromagnetic and infrared signatures. As threats change, changes must be made to keep the targets threat representative in response to changes in the test requirements of the developers of naval weapons systems.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Air Superiority Target	8.635	6.500	4.000	0.000	4.000
The Air Superiority Target (AST) is being developed as the follow-on to the current Full Scale Aerial Target (FSAT). The AST will be a supersonic, high altitude, remote-controlled aerial target. This target will have full command and control capability through normal flight maneuvers. FY 2009 Accomplishments: Developed and released RFP.					
FY 2010 Plans: Award contract and begin Engineering and Manufacturing Development (EMD).					
FY 2011 Base Plans: Continue conduct of Engineering and Manufacturing Development (EMD).					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: Febr	uary 2010		
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 6: RDT&E Management Support	R-1 ITEM NOMENCLATURE PE 0604258N: Target Systems Deve	PROJECT 0610: Wpn Sys T&E Trng Dev/Proc				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
QF-4 Full-scale Aerial Target		16.463	15.131	9.894	0.000	9.894
The FSAT is a supersonic, high altitude, remote-controlled aerial targand control capability through normal flight maneuvers. Continued p support for the FSAT, including Aviation Depot Level Repairables (A and conversion of F-4 aircraft into FSAT targets. QF-4 procurement systems testing and development, including that of the JSF, AIM-9X, FY 2009 Accomplishments: Accomplished the procurement of 5 QF-4 aircraft target. FY 2010 Plans: Plan to procure 5 QF-4 aircraft targets. FY 2011 Base Plans: Plan to maintain and operate the fielded inventory earmarked for the						
aircraft targets.	e Navy. Flati to procure 3 QF-4					
Target Control/Target Aux. & Aug. Systems and Scoring Systems		0.970	1.040	1.296	0.000	1.296
Continue to support Target Control (TC) and Target Auxiliary and Auxiliary and Auxiliary and Supporting T&E activites. TC involves the improved commof controlling multiple targets simultaneously while delivering adequated data. Augmentation and Auxiliary systems must be capable of augmacquisition test, infrared measurement/test, radar cross section evaluation test, infrared measurement/test, and evaluation of fleet targets systems include both surface and airborne scalar and vector	nand and control systems capable ate fidelity of T&E telementry nenting targets in support of radar uation, decoy effectiveness, actics, readiness and training.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE PROJECT

1319: Research, Development, Test & Evaluation, Navy

PE 0604258N: Target Systems Development 0610: Wpn Sys T&E Trng Dev/Proc

BA 6: RDT&E Management Support

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Scoring Systems completed the design/development, First Article Testing (FAT), and Qualification					
Testing (QT) for the Telemetry (TM) Antenna on the BQM-74 Target. Cross Bow live fire testing completed for the Vector Doppler Scoring (VDOPS) Small Business Innovation Research (SBIR) program.					
FY 2010 Plans: Plan to complete the design/development, First Article Testing (FAT), and Qualification Testing (QT) for the Telemetry (TM) Antenna on the Multi-Stage Supersonic Target (MSST).					
FY 2011 Base Plans:					
Continue pursuing alternative Test Set Repair sources.					
Accomplishments/Planned Programs Subtotals	26.068	22.671	15.190	0.000	15.190

C. Other Program Funding Summary (\$ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

EFFORT PERFORMANCE REQUIREMENT OBJECTIVE THRESHOLD TEST RESULT

QF-4 Flight Termination Sys.- Reliable Achieve requirement Threshold=objective Satisfactory

Full & effective auto & manual failsafe
Scale fast destruct, orbit destruct, &
Target destruct receiver capability

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APPROPRIATION/BUIGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy SA 6: RD78E Management Support AST - Air Superiority Target (QF-16) Achieve requirement Threshold=objective TBD Achieve requirement TBD Achieve	Exhibit R-2A, R	DT&E Project Justification: PB 2011 Na		DATE: February 2010			
Superiority and monitoring required Target payloads	1319: <i>Research,</i> BA 6: <i>RDT&E M</i>	Development, Test & Evaluation, Navy lanagement Support					
	BA 6: <i>RDT&E M</i> AST - Air Superiority Target	lanagement Support Capable of carrying, operating and monitoring required	Achieve requ			-	0010. Wpii Sys T&E Thig DeWFloc

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 6: RDT&E Management Support					R-1 ITEM NOMENCLATURE PE 0604258N: Target Systems Development				PROJECT 0612: Surface Targets Development				
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To	Total Cost		
0612: Surface Targets Development	2.302	1.212	1.420	0.000	1.420	1.431	1.455	1.488	1.518	Continuing	Continuing		
Quantity of RDT&F Articles	0	0	0	0	0	0	0	0	0				

A. Mission Description and Budget Item Justification

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy

This project develops seaborne targets and their related target augmentation systems in support of air-to-surface and surface-to-surface weapons test and evaluation and fleet

training.

This project unit includes \$0.011 Million for the Acquisition Workforce in FY2009.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Surface Targets Development	2.291	1.212	1.420	0.000	1.420
FY 2009 Accomplishments: Developed Low Cost Modular Target (LCMT), a tow target to replace three more expensive tow targets; Fast Attack Craft Target (FACT) transitioned to production program; Developed new Harpoon target based on LCMT to replace QST-35 Harpoon configuration; Developed instrumentation and provided craft in support of Special Operations Command (SOCOM) Combatant Craft Medium project; Supported demonstration of autonomous UAV/USV control for Broad Area Maritime Surveillance (BAMS); Integrated 3 axis solid state gyro into target autopilots to improve performance; Conducted at sea IR (Infrared) measurements of targets;					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy				DATE: Feb	ruary 2010		
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 6: RDT&E Management Support	lopment	PROJECT 0612: Surface Targets Development					
B. Accomplishments/Planned Program (\$ in Millions)			I				
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	
Similarly, conducted RCS (radar cross section) measurements of threat characterization;	target platforms at sea to assist in						
FY 2010 Plans: Create, tune, and test navigation algorithms and modes for SeaCA and formation control. Monitor developments in command & control Review capabilities of inventory WRT threat, weapons test schedu Re-baseline Radar Cross Section (RCS) for HSMST and SDST w packages to tailor RCS. Develop a realistic human target including IR signature and vulner Perform signature characterization of all powered targets including Investigate building tow targets from polyethylene. Develop deployable tow for SDST. Develop steerable tow as force multiplier.							
FY 2011 Base Plans: Continued development of complex-word Command and control ir Monitor evolving threats in small-craft world and evolve target plat threats; Develop signature management techniques to address evolving the Develop prototypes of polyethylene target platforms; Enhanced capabilities (sensors) for human target simulator to incl	forms/configurations to address						
ACQUISITION WORKFORCE FUND		0.011	0.000	0.000	0.000	0.000	
FY 2009 Accomplishments: Funded DoD Acquisition Workforce Fund.							
Accompli	shments/Planned Programs Subtotals	2.302	1.212	1.420	0.000	1.420	

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE PROJECT

1319: Research, Development, Test & Evaluation, Navy

PE 0604258N: Target Systems Development 0612: Surface Targets Development

BA 6: RDT&E Management Support

C. Other Program Funding Summary (\$ in Millions)

			FY 2011	FY 2011	FY 2011					Cost To	
<u>Line Item</u>	FY 2009	FY 2010	<u>Base</u>	OCO	<u>Total</u>	FY 2012	FY 2013	FY 2014	FY 2015	Complete	Total Cost
OPN/5455: ASW Range SE	17.086	7.234	7.121	0.000	7.121	6.144	7.228	7.357	7.490	0.000	59.660

D. Acquisition Strategy

N/A

E. Performance Metrics

Review capability of inventory with respect to threat, weapons test schedules and fleet training requirements. OBJECTIVE: Available inventory of seaborne targets to meet fleet requirements.